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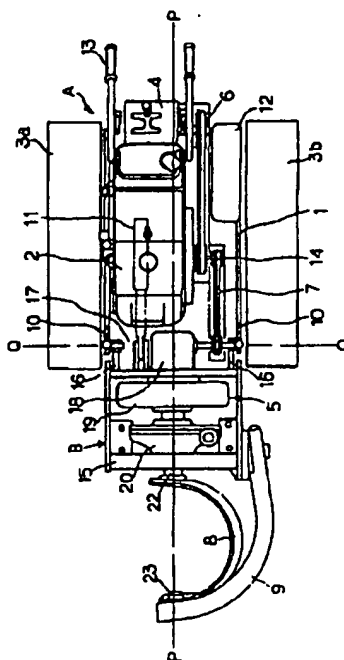
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(54) 【発明の名称】 掘取機

(57) 【要約】 (修正有)

【目的】 機体進行方向の回動軸心を中心にして機体幅方向に回り取り回転する掘取ブレードでもって苗木等を根鉢付に掘り上げるタイプの掘取機において、掘り上げ作業の際に機体が幅方向に振られることを確実に抑止して効率的に掘削することができ、また、掘り上げ作業時以外の通常走行および掘り上げた苗木の持ち運び走行も安定よく行えるようにする。

【構成】 步行操縦型車体Aの前端部に装備する略半円弧状の掘取ブレード8を、掘取駆動部5で車体中心線P-Pに対し直交する方向に加振しつつ回動させて苗木等を根鉢付に掘り上げる掘取機において、掘取ブレード8の回動中心を車体中心線P-Pに一致させ、且つ、掘取ブレード8の前端部側を支持する平面視略円弧状のフレーム9を、車体中心線P-Pから一方の履帯走行部3a又は3b側に偏寄して搭載されるエンジン2の対角位置に配設し、掘取開始前の待機姿勢の掘取ブレード8がフレーム9に沿って位置してその待機位置から回動開始するように構成することによって、機全体の左右バランスを保つようにした。



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【特許請求の範囲】

【請求項1】 歩行操縦型車体(A)の前部に装備する略半円弧状の掘取ブレード(8)を、掘取駆動部(5)でもって車体中心線(P-P)に対し直交する方向に加振しつつ回転させて苗木等を根鉢付に掘り上げる掘取機において、前記掘取ブレード(8)の回転中心を車体中心線(P-P)に一致させ、その掘取ブレード(8)の前端部側を支持する平面視略円弧状のフレーム(9)を、前記車体中心線(P-P)から一方の履帯走行部(3a)側に偏寄して搭載されるエンジン(2)の対角位置に配設し、掘取開始前の待機姿勢の掘取ブレード(8)がフレーム(9)に沿って位置してその待機位置から回転開始するようにしてあることを特徴とする掘取機。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は、振動しながら掘り取り状に掘取作動する掘取ブレードでもって苗木などを根鉢付に掘取る、掘取機に関するものである。

【0002】

【従来の技術】 歩行操縦型の自走車体の前部に装設する昇降枠体に略半円弧状の掘取ブレードを装着し、その掘取ブレードを、掘取駆動部でもって車体の幅方向中心線に対して直交する方向に加振しつつ回転させて、苗木などを根鉢付に掘り上げる掘取機が知られている(例えば、実開昭58-26848号公報参照)。

【0003】

【発明が解決しようとする課題】 ところで、従来の掘取機は、四輪走行形式の自走車体から前方に掘取ブレードを突設して構成されており、掘取ブレードが振動しながら土中に喰い込んで根元部を掘り上げる際に機体の後部が浮き上がり易くて掘り上げ能力が低下するきらいがあるので、それを防ぐために、車体の後端部にバッテリーや油タンク等の重量物を配設して機体後部の浮き上がりを抑えるものとなっている。故に、従来の掘取機では、車体が前後に長くなって車体回向時などに広い運行スペースが必要であるので作業時、通常運行時ともに不利であり、さらに、機全体の前後バランスを保つ配慮はされているものの、左右バランスについては格別考慮されていなかったため、掘取ブレードが機体幅方向に加振しつつ回転されて掘削作動する際の反力で機が横振れし易くて掘削能力が低下するきらいがあり、また、掘り上げた苗木等の根鉢部を掘取ブレード上に載せた状態で移動する際にも苗木を安定よく支持することができないといった問題点があった。本発明は、従来の掘取機における上記の問題点に着目し、その問題点を解決することを目的として実施したものである。

【0004】

【課題を解決するための手段】 すなわち、本発明における掘取機は、歩行操縦型車体(A)の前部に装備する略

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半円弧状の掘取ブレード(8)を、掘取駆動部(5)でもって車体中心線(P-P)に対し直交する方向に加振しつつ回転させて苗木等を根鉢付に掘り上げる掘取機において、前記掘取ブレード(8)の回転中心を車体中心線(P-P)に一致させ、その掘取ブレード(8)の前端部側を支持する平面視略円弧状のフレーム(9)を、前記車体中心線(P-P)から一方の履帯走行部(3a)側に偏寄して搭載されるエンジン(2)の対角位置に配設し、掘取開始前の待機姿勢の掘取ブレード(8)がフレーム(9)に沿って位置してその待機位置から回転開始するようにしてあることを特徴とするものである。

【0005】

【発明の作用及び効果】 本発明の掘取機にあっては、掘取ブレード(8)の前端部を支持する略円弧状フレーム(9)と、それに支持されて待機姿勢に位置する掘取ブレード(8)とが車体中心線(P-P)より一方の履帯走行部(3a)側に偏寄して配置されるエンジン(2)に対して対角位置に配置されていることによって機全体の左右バランスが保たれるので、通常運行の場合に直進性よく走行することができ、また、機体を運行しつつ掘取ブレードを掘取対象の苗木等の根元部に合致させる所作も容易に好都合に行うことができる。

【0006】 さらに、掘取ブレード(8)で苗木等の幹元部を根鉢付に掘り上げる際には、自走車体が履帯走行部によってしっかりと支えられ、待機位置から車体中心線(P-P)を中心にして回転開始する掘取ブレード(8)による振動および掘削反力を車体中心線(P-P)を挟んで反対側に位置するエンジン(2)重量で確実に受け止めるので、掘取機が幅方向に振られることがなく掘削能力が向上して良好な掘取作業ができ、また、掘り取り後の苗木の持ち運びも、回転中心が車体中心線に一致する掘取ブレードによって根鉢部の中心を安定よく支持しながら行うことができる。

【0007】

【実施例】 つぎに、本発明の実施例について図面を参照して説明する。図1は本発明による掘取機の全体側面図、図2は同掘取機の全体平面図であり、図示の掘取機は、自走車体(A)と、自走車体(A)の前方部にある自走車体に対して昇降動できるように取付けられる昇降枠体(B)とから構成されている。

【0008】 自走車体(A)は、機台(1)を支える左右一対の履帯走行部(3a)(3b)を、機台(1)に搭載のエンジン(2)に連動する走行ミッション(4)で駆動できるようにするとともに、機台(1)の前方部に上記昇降枠体(B)を上下方向に回転可能に支持する取付部(10)(10)を設けて構成される。

【0009】 前記エンジン(2)は、自走車体(A)の中心線(P-P)から一方の履帯走行部(3a)がわに偏寄して機台(1)上に搭載され、その出力軸(14)

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は他方の履帯走行部(3b)がわに突出される。そして、出力軸(14)と走行ミッション(4)との間を連動連結する伝動部(6)、ならびに出力軸(14)と後述する掘取駆動部(5)の入力軸との間を連動連結する伝動部(7)とが、前記車体中心線(P-P)よりも他方の履帯走行部(3b)寄りに位置して設けられる。

【0010】さらに、機台(1)上には前記昇降枠体(B)を昇降動するための油圧シリンダ(11)および油圧タンク(12)などの必要機構が配設されるが、油圧タンク(12)は、前記伝動部(6)(7)と同じ側のエンジン機側部に配設され、油圧シリンダ(11)は、車体中心線(P-P)をはさんで油圧タンク(12)に対向する機台前部に配設される(第2図参照)。また、機台(1)の後尾部からは歩行操縦ハンドル(13)が延設される。

【0011】一方、昇降枠体(B)は、掘取駆動部(5)を取付ける支持枠(15)の後面に設けられた取付腕(16)(16)を、前記取付部(10)(10)にそれぞれ上下方向回転自在に取付けることによって機台(1)に装備され、支持枠(15)の後面に設けられた装着部(17)に前記油圧シリンダ(11)のピストンロッドを連結するように構成される。

【0012】掘取駆動部(5)は、後端部を入力部(18)とし車体中心線(P-P)に対して一方の履帯走行部(3b)寄り箇所から入力され、その前部に振動付与機構(19)を建設して、該機構(19)の前部に出力部(20)を設けて構成されるのであり、入力部(18)の入力軸(21)は、前記取付腕(16)(16)の回転軸心(Q-Q)に軸心が一致するように設けられ、前記伝動部(7)でもってエンジンの出力軸に連動連結される。

【0013】また、出力部(20)の出力軸(22)は、車体中心線(P-P)を前方に延長する線上に軸心が一致するようにして前方に突出される。出力軸(22)には、掘取ブレード(8)の後方基端部が連動結合して支持され、その掘取ブレード(8)は、第2図にみられるように平面視において略半円弧状に形成されて、先端部には前記出力軸(22)の軸心延長線上に中心が位置する枢着部(23)が設けられ、出力軸(22)の回転によって車体中心線(P-P)に対して直交する方向に掬い取り状に回転するように設けられる。

【0014】さらに、掘取ブレード(8)は、回転方向において適宜の幅を有し、その断面形状が円弧状となるように形成され、回転前縁に刃部(24)を設けて形成される。掘取ブレード(8)の先端側における枢着部(23)は、支持枠(15)から延設するフレーム(9)に支持されるが、該フレーム(9)は、伝動部(6)(7)設置がわに位置する支持枠(15)の側面部に基部が取付けられ、前方への延出部が平面視において前記掘取ブレード(8)の半円弧形状に沿うように彎

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曲形成され、その延出先端部から垂下する支持部(25)に、前記掘取ブレード先端の枢着部(23)を回転自在に支承するものとなっている。

【0015】つぎに、上記のように構成された掘取機の作動態様を説明する。掘取を行わないときの掘取ブレード(8)は、第2図に示しているように、フレーム(9)に沿う待機位置で停止され、昇降枠体(B)全体が油圧シリンダ(11)によって回転軸心(Q-Q)を中心にして上昇されている。したがって、非作業体勢での掘取機の通常運行時には、待機位置にある掘取ブレードおよびそれを支持するフレームと、一方の履帯走行部(3a)がわに偏寄して配置されるエンジンとが対角位置にあつて機全体の左右バランスが保たれて直進性、回向性よく運行しながら掘取ブレードを掘取対象の苗木等の幹元部に容易に適合させることができる。

【0016】そして、掘取ブレード(8)を掘取対象の苗木等の幹元部に適合させたのち、自走車体を停止して掘取駆動部(5)を作動開始し昇降枠体(B)を降下させて行けば振動する掘取ブレード(8)が刃部(24)から土中に切り込みつつ出力軸(22)によって回転されて土中を切り進み、自走車体(A)が履帯走行部(3a)(3b)によって前後方向にしっかり支えられるため車体後部が浮き上がるようなことがなく苗木等の根部分が的確に掘削され、略半円状の根鉢付状態に切り離される。

【0017】根部の切り離しが完了したのち、掘取ブレード(8)を根鉢部の下側にまで戻すと、苗木の根鉢の中心部が掘取ブレード(8)に載せられた状態になり昇降枠体(B)の上昇で根鉢付苗木が持ち上げられ、その持ち上げ状態を維持しつつ自走車体(A)を適宜に前後進させることによって、掘り上げた苗木等を他所に運ぶことができるのである。

【0018】上記のような態様で苗木等の掘り上げが行われる際には振動および掘削による荷重が車体幅方向にかかるのであるが、待機位置から掘削作動する掘取ブレードに対し、車体中心線(P-P)を挟んで反対側にエンジン(2)が配設されて振動および掘削による荷重反力をバランスよく受け止めるので、機が幅方向にふたつくことなく良好に掘取作業できるのである。

【図面の簡単な説明】

【図1】本発明による掘取機の全体側面図である。

【図2】本発明による掘取機の全体平面図である。

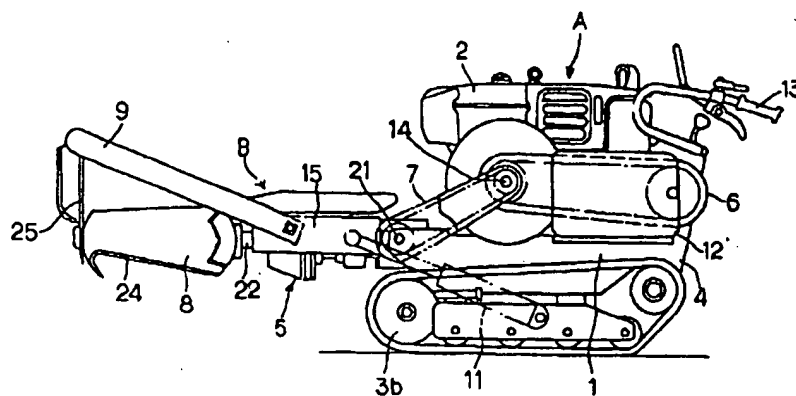
【符号の説明】

- 2・・・エンジン
- 3a、3b・・・履帯走行部
- 5・・・掘取駆動部
- 8・・・掘取ブレード
- 9・・・フレーム
- A・・・歩行操縦型の自走車体
- P-P・・・車体中心線

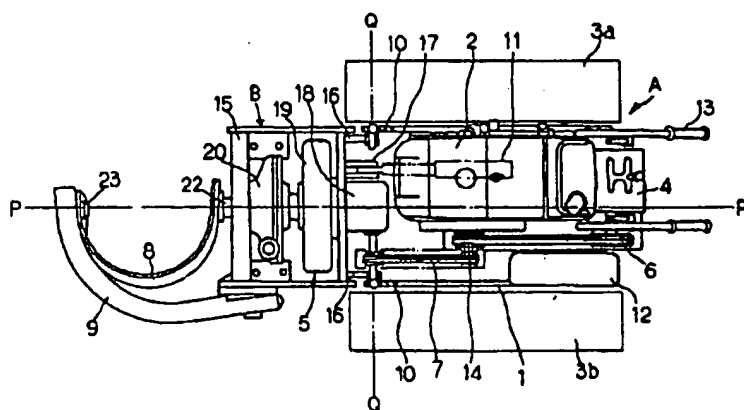
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【図1】



【図2】



PATENT ABSTRACTS OF JAPAN

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(71)Applicant : SEIREI IND CO LTD

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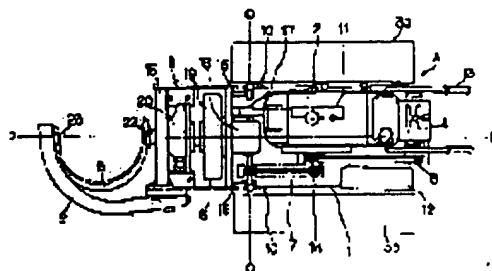
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(54) DIGGER

(57)Abstract:

PURPOSE: To provide a digger ensured to make no shaking motion in its with direction and move with supporting the center of its root pot by arranging a digging blade and its supporting frame in specific manners respectively.

CONSTITUTION: A digging blade 8 and a frame 9 supporting its front end are arranged so as to be located at the diagonal positions to an engine 2 set biasedly toward one traveling part 3a side from the truck centerline P-P. A digging blade is revolved starting from the waiting position as shown in the figure, initiating a digging operation.



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08.12.1995

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CLAIMS

[Claim(s)]

[Claim 1] In the digger which is rotated exciting in the direction which intersects perpendicularly that a **** mechanical component (5) is also about the **** blades (8) of an abbreviation semicircle arc with which the anterior part of a walk operation mold car body (A) is equipped to a car-body center line (P-P), and has dug the plant etc. with a root ball The rotation core of said **** blade (8) is made in agreement with a car-body center line (P-P). The frame (9) of a plane view approximate circle arc which supports the front end section side of the **** blade (8) It arranges in the diagonal location of the engine (2) ****(ed) and carried in one track-link transit section (3a) side from said car-body center line (P-P). The digger characterized by locating the **** blade (8) of the standby posture before **** initiation along with a frame (9), and having carried out rotation initiation from the position in readiness.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Vibrating, this invention relates a plant etc. to the letter of scooping with a root ball at ***** and a digger as it is also at the **** blade which carries out **** actuation.

[0002]

[Description of the Prior Art] Equip with the **** blade of an abbreviation semicircle arc the rise-and-fall frame with which the anterior part of the self-propelled car body of a walk operation mold is decorated, and it is made to rotate, exciting in the direction which intersects perpendicularly that a **** mechanical component is also about the **** blade to the crosswise center line of a car body, and the digger which has dug the plant etc. with a root ball is known (for example, refer to JP,58-26848,U).

[0003]

[Problem(s) to be Solved by the Invention] By the way, ahead, the conventional digger protrudes and the **** blade is constituted from a self-propelled car body of a four-flower transit format. By that of disagreeable ***** to which the posterior part of an airframe tends to come floating to, and digs, and raising capacity falls when eating in soil and having dug root Motobe, while a **** blade vibrates In order to prevent it, heavy lifts, such as a dc-battery and an oil tank, are arranged in the back end section of a car body, and the relief of an airframe posterior part is stopped. Since the large operation tooth space is required of the conventional digger at the time of a car-body mass for the dead etc., by a car body becoming long forward and backward At therefore, the time of an activity Usually, although it is disadvantageous and consideration which maintains balance before and after the whole opportunity further was carried out, since it was not exceptionally taken into consideration about right-and-left balance, the time of operation Those with disagreeable ** to which it rotates, and it is easy to carry out the horizontal deflection of the

opportunity by the reaction force at the time of carrying out digging actuation, and digging capacity falls, a **** blade being excited crosswise [airframe], Moreover, also when moving the root ball sections, such as a dug plant, in the condition of having carried on the **** blade, there was a trouble that a plant could not be supported with sufficient stability. This invention is carried out for the purpose of solving the trouble paying attention to the above-mentioned trouble in the conventional digger.

[0004]

[Means for Solving the Problem] The digger in this invention namely, the **** blade (8) of an abbreviation semicircle arc with which the anterior part of a walk operation mold car body (A) is equipped In the digger which is rotated exciting in the direction which intersects perpendicularly that a **** mechanical component (5) is also to a car-body center line (P-P), and has dug the plant etc. with a root ball The rotation core of said **** blade (8) is made in agreement with a car-body center line (P-P). The frame (9) of a plane view approximate circle arc which supports the front end section side of the **** blade (8) It arranges in the diagonal location of the engine (2) ****(ed) and carried in one track-link transit section (3a) side from said car-body center line (P-P). It is characterized by locating the **** blade (8) of the standby posture before **** initiation along with a frame (9), and having carried out rotation initiation from the position in readiness.

[0005]

[Function and Effect of the Invention] The approximate circle arc frame which supports the front end section of a **** blade (8) if it is in the digger of this invention (9), Since the right-and-left balance of the whole opportunity is maintained by being arranged in the diagonal location to the engine (2) with which the **** blade (8) which is supported by it and located in a standby posture ****, and is arranged from a car-body center line (P-P) at one track-link transit section (3a) side Usually, the conduct which makes root Motobe, such as a plant for ****, agree can also perform a **** blade conveniently easily, being able to run with sufficient rectilinear-propagation nature in operation, and operating an airframe.

[0006] furthermore, when having dug trunk Motobe, such as a plant, with a root ball with the **** blade (8) a self-propelled car body supports firmly by the track-link transit section -- having -- a position-in-readiness empty vehicle -- the inside of the body, since it responds to certainly vibration and digging reaction force with the **** blade (8) which carries out rotation initiation a core [core wire (P-P)] by the engine (2) weight located in the opposite side on both sides of a car-body center line (P-P) It can carry out supporting the core of the root ball section with sufficient stability with the **** blade to which a digger is not shaken crosswise, digging capacity improves, a good **** activity can be performed, and it digs and carrying of the plant after picking of a rotation core also corresponds with a car-body center line.

[0007]

[Example] Below, the example of this invention is explained with reference to a drawing. The whole digger side elevation according [drawing 1] to this invention and drawing 2 are these whole digger top views, and the digger of illustration consists of a self-propelled car body (A) and a rise-and-fall frame (B) attached so that it may be in the front section of a self-propelled car body (A) and can move vertically to a self-propelled car body.

[0008] A self-propelled car body (A) prepares the attachment section (10) which supports the above-mentioned rise-and-fall frame (B) rotatable in the vertical direction, and (10) in the front section of a machine stool (1), and is constituted while enabling it to drive the track-link transit section (3a) (3b) supporting a machine stool (1) of a Uichi Hidari pair with the transit missions

(4) interlocked with the engine (2) of loading in a machine stool (1).

[0009] One track-link transit section (3a) carries out alligator **** of said engine (2) from the center line (P-P) of a self-propelled car body (A), it is carried on a machine stool (1), and, as for the output shaft (14), the alligator protrusion of the track-link transit section (3b) of another side is carried out. And the transmission section (6) which carries out interlocking connection of between an output shaft (14) and transit missions (4), and the transmission section (7) which carries out interlocking connection of between an output shaft (14) and the input shafts of a **** mechanical component (5) mentioned later are located and prepared in the track-link transit section (3b) approach of another side rather than said car-body center line (P-P).

[0010] Furthermore, although need devices, such as an oil hydraulic cylinder (11) for moving said rise-and-fall frame (B) vertically and a pressure oil tank (12), are arranged on a machine stool (1) A pressure oil tank (12) is arranged in the engine horizontal flank of the same side as said transmission section (6) and (7), and an oil hydraulic cylinder (11) is arranged in the machine stool anterior part which counters a pressure oil tank (12) on both sides of a car-body center line (P-P) (refer to the 2nd Fig.). Moreover, a walk control lever (13) is installed from the rear section of a machine stool (1).

[0011] On the other hand, by attaching in said attachment section (10) and (10) the attachment arm (16) formed in the rear face of the housing (15) which attaches a **** mechanical component (5), and (16) respectively free [the vertical direction rotation], a machine stool (1) is equipped with a rise-and-fall frame (B), and it is constituted so that the piston rod of said oil hydraulic cylinder (11) may be connected with the applied part (17) prepared in the rear face of a housing (15).

[0012] A **** mechanical component (5) makes the back end section the input section (18), is inputted from one track-link transit section (3b) approach part to a car-body center line (P-P), and forms oscillating grant devices (19) successively to the anterior part. The output section (20) is prepared in the anterior part of this device (19), and it is constituted, and the input shaft (21) of the input section (18) is established so that an axial center may be in agreement with the rotation axial center (Q-Q) of said attachment arm (16) and (16), and interlocking connection is carried out to said transmission section (7) being at an engine output shaft.

[0013] Moreover, as the axial center of the output shaft (22) of the output section (20) corresponds on the line which extends a car-body center line (P-P) ahead, it is projected ahead. The back end face section of a **** blade (8) carries out interlocking association, and is supported by the output shaft (22). The **** blade (8) In plane view, are formed in an abbreviation semicircle arc so that it may see in Fig. 2, and the pivoting section (23) to which a core is located on the axial center production of said output shaft (22) is prepared in a point. It is prepared so that it may rotate in the shape of scooping in the direction which intersects perpendicularly to a car-body center line (P-P) by rotation of an output shaft (22).

[0014] Furthermore, a **** blade (8) has proper width of face in a hand of cut, it is formed so that the cross-section configuration may become circular, prepares a cutting part (24) in rotation first transition, and is formed in it. Although the pivoting section (23) by the side of the tip of a **** blade (8) is supported by the frame (9) installed from a housing (15) A base is attached in the lateral portion of the housing (15) to which transmission section (6) and (7) installation carries out the alligator location of this frame (9). Curvature formation is carried out so that the extension section to the front may meet the semicircle arc configuration of said **** blade (8) in plane view, and the pivoting section (23) at said tip of a **** blade is supported to the supporter (25) which hangs from the extension point, enabling free rotation.

[0015] Below, the actuation mode of the digger constituted as mentioned above is explained. It is stopped in the position in readiness which meets a frame (9), and the whole rise-and-fall frame (B) is going up focusing on the rotation axial center (Q-Q) by the oil hydraulic cylinder (11) as the **** blade (8) when not performing **** is shown in Fig. 2. Therefore, at the time of usual operation of the digger in a non-work posture, a **** blade can be easily fit to trunk Motobe, such as a plant for ****, the frame which support the **** blade and it in a position in readiness, and the engine with which one track link transit section (3a) carry out alligator ****, and be arrange be in a diagonal location, and the right and left balance of the whole opportunity be maintain, and operate with rectilinear propagation nature and sufficient mass for the dead nature.

[0016] And after fitting a **** blade (8) to trunk Motobe, such as a plant for ****, The **** blade (8) which will vibrate if stop a self-propelled car body, actuation initiation of the **** mechanical component (5) is carried out, a rise-and-fall frame (B) is dropped and it goes cutting deeply in soil from a cutting part (24), rotate with an output shaft (22), and cut the inside of soil and it progresses. In order that a self-propelled car body (A) may support firmly to a cross direction by the track-link transit section (3a) (3b), roots, such as a plant, excavate exactly and are separated by abbreviation semicircle-like a condition with a root ball so that a car-body posterior part may not come floating.

[0017] If a **** blade (8) is returned even to the root ball section bottom after separation of a root is completed The core of the root ball of a plant will be put on a **** blade (8), a plant with a root ball is raised by rise of a rise-and-fall frame (B), and the dug plant can be carried to the other place by [the] making a self-propelled car body (A) ** suitably approximately, raising and maintaining a condition.

[0018] In case a plant etc. digs in the above modes and raising is performed, the load by vibration and digging is applied crosswise [car-body], but since an engine (2) is arranged in the opposite side on both sides of a car-body center line (P-P) and it responds to the load reaction force by vibration and digging with sufficient balance to the **** blade which carries out digging actuation from a position in readiness, a **** activity is done good, without an opportunity being unsteady crosswise.

[Translation done.]

TECHNICAL FIELD

[Industrial Application] Vibrating, this invention relates a plant etc. to the letter of scooping with a root ball at ***** and a digger as it is also at the **** blade which carries out **** actuation.

[Translation done.]

PRIOR ART

[Description of the Prior Art] Equip with the **** blade of an abbreviation semicircle arc the rise-and-fall frame with which the anterior part of the self-propelled car body of a walk operation mold is decorated, and it is made to rotate, exciting in the direction which intersects perpendicularly that a **** mechanical component is also about the **** blade to the crosswise center line of a car body, and the digger which has dug the plant etc. with a root ball is known (for example, refer to JP,58-26848,U).

[Translation done.]

EFFECT OF THE INVENTION

[Function and Effect of the Invention] The approximate circle arc frame which supports the front end section of a **** blade (8) if it is in the digger of this invention (9), Since the right-and-left balance of the whole opportunity is maintained by being arranged in the diagonal location to the engine (2) with which the **** blade (8) which is supported by it and located in a standby posture ****, and is arranged from a car-body center line (P-P) at one track-link transit section (3a) side Usually, the conduct which makes root Motobe, such as a plant for ****, agree can also perform a **** blade conveniently easily, being able to run with sufficient rectilinear-propagation nature in operation, and operating an airframe.

[0006] furthermore, when having dug trunk Motobe, such as a plant, with a root ball with the **** blade (8) a self-propelled car body supports firmly by the track-link transit section -- having -- a position-in-readiness empty vehicle -- the inside of the body, since it responds to certainly vibration and digging reaction force with the **** blade (8) which carries out rotation initiation a core [core wire (P-P)] by the engine (2) weight located in the opposite side on both sides of a car-body center line (P-P) It can carry out supporting the core of the root ball section with sufficient stability with the **** blade to which a digger is not shaken crosswise, digging capacity improves, a good **** activity can be performed, and it digs and carrying of the plant after picking of a rotation core also corresponds with a car-body center line.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By the way, ahead, the conventional digger protrudes and the **** blade is constituted from a self-propelled car body of a four-flower transit format. By that of disagreeable ***** to which the posterior part of an airframe tends to come floating to, and digs, and raising capacity falls when eating in soil and having dug root Motobe, while a **** blade vibrates In order to prevent it, heavy lifts, such as a dc-battery and an oil tank, are arranged in the back end section of a car body, and the relief of an airframe posterior part is stopped. Since the large operation tooth space is required of the conventional digger at the time

of a car-body mass for the dead etc., by a car body becoming long forward and backward At therefore, the time of an activity Usually, although it is disadvantageous and consideration which maintains balance before and after the whole opportunity further was carried out, since it was not exceptionally taken into consideration about right-and-left balance, the time of operation Those with disagreeable ** to which it rotates, and it is easy to carry out the horizontal deflection of the opportunity by the reaction force at the time of carrying out digging actuation, and digging capacity falls, a **** blade being excited crosswise [airframe], Moreover, also when moving the root ball sections, such as a dug plant, in the condition of having carried on the **** blade, there was a trouble that a plant could not be supported with sufficient stability. This invention is carried out for the purpose of solving the trouble paying attention to the above-mentioned trouble in the conventional digger.

[Translation done.]

MEANS

[Means for Solving the Problem] The digger in this invention namely, the **** blade (8) of an abbreviation semicircle arc with which the anterior part of a walk operation mold car body (A) is equipped In the digger which is rotated exciting in the direction which intersects perpendicularly that a **** mechanical component (5) is also to a car-body center line (P-P), and has dug the plant etc. with a root ball The rotation core of said **** blade (8) is made in agreement with a car-body center line (P-P). The frame (9) of a plane view approximate circle arc which supports the front end section side of the **** blade (8) It arranges in the diagonal location of the engine (2) ****(ed) and carried in one track-link transit section (3a) side from said car-body center line (P-P). It is characterized by locating the **** blade (8) of the standby posture before **** initiation along with a frame (9), and having carried out rotation initiation from the position in readiness.

[Translation done.]

EXAMPLE

[Example] Below, the example of this invention is explained with reference to a drawing. The whole digger side elevation according [drawing 1] to this invention and drawing 2 are these whole digger top views, and the digger of illustration consists of a self-propelled car body (A) and a rise-and-fall frame (B) attached so that it may be in the front section of a self-propelled car body (A) and can move vertically to a self-propelled car body.

[0008] A self-propelled car body (A) prepares the attachment section (10) which supports the above-mentioned rise-and-fall frame (B) rotatable in the vertical direction, and (10) in the front section of a machine stool (1), and is constituted while enabling it to drive the track-link transit section (3a) (3b) supporting a machine stool (1) of a Uichi Hidari pair with the transit missions

(4) interlocked with the engine (2) of loading in a machine stool (1).

[0009] One track-link transit section (3a) carries out alligator **** of said engine (2) from the center line (P-P) of a self-propelled car body (A), it is carried on a machine stool (1), and, as for the output shaft (14), the alligator protrusion of the track-link transit section (3b) of another side is carried out. And the transmission section (6) which carries out interlocking connection of between an output shaft (14) and transit missions (4), and the transmission section (7) which carries out interlocking connection of between an output shaft (14) and the input shafts of a **** mechanical component (5) mentioned later are located and prepared in the track-link transit section (3b) approach of another side rather than said car-body center line (P-P).

[0010] Furthermore, although need devices, such as an oil hydraulic cylinder (11) for moving said rise-and-fall frame (B) vertically and a pressure oil tank (12), are arranged on a machine stool (1) A pressure oil tank (12) is arranged in the engine horizontal flank of the same side as said transmission section (6) and (7), and an oil hydraulic cylinder (11) is arranged in the machine stool anterior part which counters a pressure oil tank (12) on both sides of a car-body center line (P-P) (refer to the 2nd Fig.). Moreover, a walk control lever (13) is installed from the rear section of a machine stool (1).

[0011] On the other hand, by attaching in said attachment section (10) and (10) the attachment arm (16) formed in the rear face of the housing (15) which attaches a **** mechanical component (5), and (16) respectively free [the vertical direction rotation], a machine stool (1) is equipped with a rise-and-fall frame (B), and it is constituted so that the piston rod of said oil hydraulic cylinder (11) may be connected with the applied part (17) prepared in the rear face of a housing (15).

[0012] A **** mechanical component (5) makes the back end section the input section (18), is inputted from one track-link transit section (3b) approach part to a car-body center line (P-P), and forms oscillating grant devices (19) successively to the anterior part. The output section (20) is prepared in the anterior part of this device (19), and it is constituted, and the input shaft (21) of the input section (18) is established so that an axial center may be in agreement with the rotation axial center (Q-Q) of said attachment arm (16) and (16), and interlocking connection is carried out to said transmission section (7) being at an engine output shaft.

[0013] Moreover, as the axial center of the output shaft (22) of the output section (20) corresponds on the line which extends a car-body center line (P-P) ahead, it is projected ahead. The back end face section of a **** blade (8) carries out interlocking association, and is supported by the output shaft (22). The **** blade (8) In plane view, are formed in an abbreviation semicircle arc so that it may see in Fig. 2, and the pivoting section (23) to which a core is located on the axial center production of said output shaft (22) is prepared in a point. It is prepared so that it may rotate in the shape of scooping in the direction which intersects perpendicularly to a car-body center line (P-P) by rotation of an output shaft (22).

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[0015] Below, the actuation mode of the digger constituted as mentioned above is explained. It is stopped in the position in readiness which meets a frame (9), and the whole rise-and-fall frame (B) is going up focusing on the rotation axial center (Q-Q) by the oil hydraulic cylinder (11) as the **** blade (8) when not performing **** is shown in Fig. 2. Therefore, at the time of usual operation of the digger in a non-work posture, a **** blade can be easily fit to trunk Motobe, such as a plant for ****, the frame which support the **** blade and it in a position in readiness, and the engine with which one track link transit section (3a) carry out alligator ****, and be arrange be in a diagonal location, and the right and left balance of the whole opportunity be maintain, and operate with rectilinear propagation nature and sufficient mass for the dead nature.

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[0017] If a **** blade (8) is returned even to the root ball section bottom after separation of a root is completed The core of the root ball of a plant will be put on a **** blade (8), a plant with a root ball is raised by rise of a rise-and-fall frame (B), and the dug plant can be carried to the other place by [the] making a self-propelled car body (A) ** suitably approximately, raising and maintaining a condition.

[0018] In case a plant etc. digs in the above modes and raising is performed, the load by vibration and digging is applied crosswise [car-body], but since an engine (2) is arranged in the opposite side on both sides of a car-body center line (P-P) and it responds to the load reaction force by vibration and digging with sufficient balance to the **** blade which carries out digging actuation from a position in readiness, a **** activity is done good, without an opportunity being unsteady crosswise.

[Translation done.]

Brief Description of the Drawings]

[Drawing 1] It is the whole digger side elevation by this invention.

[Drawing 2] It is the whole digger top view by this invention.

[Description of Notations]

2 ... Engine

3a, 3b ... Track-link transit section

5 ... **** mechanical component

8 ... **** blade

9 ... Frame

A ... Self-propelled car body of a walk operation mold

P-P ... Car-body center line

[Translation done.]

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